



Technology

How To Spot A Fake

Stephane Fitch 12.03.08, 4:00 PM ET

It still rates as one of most exciting finds in recent art history: Filmmaker Alex Matter announced in May 2005 that among his family's belongings on Long Island, he had discovered [32 drip paintings](#) from his deceased parents' close friend and neighbor, Jackson Pollock. The collection's value was thought to be near \$40 million.

Not bad, considering most of the works had apparently spent two decades stuffed in a storage bin and wrapped in brown paper inscribed "Pollock (1946-49)" by Matter's father, Herbert. Alex Matter had the works authenticated by a well-known Pollock scholar, Ellen G. Landau. Then he went a step further, offering to let several other outside experts study the paintings more closely.

Uh-oh. Among the investigators who stepped forward was [James Martin](#), whose Williamstown, Mass., firm, Orion Analytical, specializes in using new technology to study art. Martin trained a Raman microscope on 19 of Matter's Pollocks and spotted evidence invisible to Ellen Landau's highly trained eye, including five paint pigments on these Pollocks that allegedly didn't exist in 1949--they'd been invented years or even decades after Pollock's death in 1956.

Perhaps these were just whimsical experiments in drip-painting by Alex Matter's parents, not their famous friend. Matter himself finds the pigment results troubling, but not conclusive.

"I trust what my dad wrote on the package," he says. He believes the paint-pigment patent histories may be flawed.

If the paintings are indeed fakes, and had been sold to a collector, they'd be part of the \$6 billion a year the Federal Bureau of Investigations says we pay for forged, misattributed and stolen art.

The art world is thinly funded, insular and suspicious of costly new technologies that have the potential to undermine serious connoisseurship and provenance researchers. But there are a few new technologies gaining acceptance now or currently in development that can help us avoid fakes.

In Depth: How To Spot A Fake

Take [Fourier transform infrared \(FTIR\) spectroscopy](#) and [Raman spectroscopy](#). A staple in medical and weapons research labs for a decade or two, FTIR and Raman microscopes have gained acceptance in the art world in the past five years.

Both provide a nifty way to tell what the ingredients in a surface coating are because there's no need to chip off a sample of the paint. Just shoot a light beam at a surface--a Raman microscope can zoom down to areas as small as one-1,000th of a millimeter--and then match the pattern of absorbed or altered wavelengths detected to those of known materials.

Most major museums still don't have this equipment, which can cost \$100,000 to buy. Martin has been an early adopter. In the late 1990s he used an FTIR scope to help the FBI spot shams that a man named Charles Heller sold as authentic works from William Aiken Walker. Walker sold post-Civil War plantation scenes to tourists for as little as fifty cents until he died in 1921. Heller had sold phony Walkers for more than \$9,000. Martin was the first art authenticator in the U.S. to buy a Raman microscope.

Software that museums can use to easily analyze the thread patterns in the canvases of all their works may also be used to spot a fake. Curators have known for years that the slight irregularities in the spacing of threads in old canvases, particularly those woven on hand-operated looms, are almost as distinctive as fingerprints. Alas, measuring the spacing between canvas threads

by hand is painstaking, so it's virtually never done.

Cornell University engineering professor Richard Johnson has developed software that makes it a snap. Designed to run on Windows XP, it doesn't even require curators to make new scans of their paintings. It interprets the drawer-fulls of X-ray scans that most museums have already taken of their paintings.

Johnson has been asking museums who accept his free software--two of the recent takers are the Van Gogh Museum in Amsterdam and the Rice Museum in Georgetown, S.C.--to publish reference catalogs of their canvases for use by other curators and art authenticators. He plans to charge for the software eventually.

Some experimental new computer programs seem to be able to spot a fake by mathematically comparing brush stroke patterns--how many, how long, how thick--to brush strokes on better-known works by the same artist. Last summer the Van Gogh Museum in Amsterdam commissioned a forgery of one of its paintings and presented a high-resolution image of the fake along with shots of four authentic Van Goghs to three teams of brush stroke-analysis researchers. All three teams succeeded at ferreting out the forgery.

Penn State computer science professor James Z. Wang, who headed one of the three teams, admits his software probably isn't good enough yet to catch a master forger whose brush strokes would match the original artist's closely. But there's enormous promise for the future.

Nervous about a painting in your own collection? Don't be a sucker. Start by showing the work to serious art scholars and connoisseurs armed with old-fashioned knowledge and techniques.

Asking a technologist to study your painting before you've spoken to an ordinary expert, says Sharon Flescher, head of the nonprofit International Foundation for Art Research, "would be the same as skipping a doctor's exam and going straight to the MRI or CAT scan."

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